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EXAMINER	
LOVEL, KIMBERLY M	
ART UNIT	**PAPER NUMBER**
2167	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/796,249	OWARA ET AL.	
	Examiner	Art Unit	
	KIMBERLY LOVEL	2167	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 April 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8,12,14-25,29,31-39,41,42 and 46-50* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8, 12, 14-25, 29, 31-39, 41, 42 and 46-50* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This communication is in response to the Amendment filed 27 April 2010.

2. Claims 1-8, 12, 14-25, 29, 31-35, 37-39, 41, 42 and 46-50 are currently pending and claims 9-11, 13, 26-28, 30, 36, 40 and 43-45 are canceled. In the Amendment filed 27 April 2010, claims 1, 5-7, 14, 18, 20, 22, 24, 25, 31-34, 38 and 39 are amended. This action is made Final.

3. The prior art rejections of the claims in the Non-Final Rejection mailed 18 February 2010 are maintained.

Claim Objections

4. The objections to **claims 5-7, 14, 15, 18, 22, 24, 31, 32, 34, 38 and 39** have been withdrawn as necessitated by amendment.

5. **Claims 15 and 32** are objected to because of the following informalities:

Claim 15 is directed towards destroying a qtree relationship. Claim 15 has been amended to be dependent on claim 1 instead of claim 14. However, it appears that claim 15 should still depend on claim 15, since claim 14 is directed towards qtree relationships.

Claim 32 is directed towards destroying a qtree relationship. Claim 32 has been amended to be dependent on claim 18 instead of claim 31. However, it appears that claim 32 should still depend on claim 31, since claim 31 is directed towards qtree relationships.

Appropriate correction is required.

35 USC § 101- Clarifications

6. Claims 39 and 41 are directed towards a computer readable medium. It is noted that the examiner construes the medium as being limited to statutory subject that meet the requirements under 35 USC 101.

7. Claims 1-8, 12, 14-17 and 50 are directed towards a system, which includes source servers. It is noted that in light of page 35, lines 25-28 of Applicant's specification, the examiner construes the servers to be limited to an embodiment of hardware or a combination of hardware and software, thereby providing the hardware necessary for the system to fall within one of the statutory categories under 35 USC 101.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 1, 2, 6, 15-19, 31-35, 38, 49 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over US PGPub 2005/0216788 to Mani-Meitav et al (hereafter Mani) in view of US Patent No 7,529,778 to Dewey et al (hereafter Dewey).

Referring to claim 1, Mani discloses a system [Fast Backup Storage and Recovery of Data system] (see [0058]) for indexing and manipulating backup data stored on a destination storage system comprising:

one or more source storage systems [servers 3] configured to [storage mode] transmit the backup data [source data is backed up] to the destination storage system [repository 15] (see [0135], lines 1-5; [0174], lines 3-6 and Figs 3-4);

a management application [backup appliance 17] executed by a processor (see [0169]), wherein the management application is configured to communicate with the destination storage system [repository 15] and further configured to access data identifiers [attributes pertaining the snapshot] related to the backup data organized in a directory tree structure [file system structure] representing a plurality of persistent consistency point images (PCPIs) of the backup data [snapshot], wherein each PCPI is associated with a creation time [time of snapshot] (see [0026]; [0138]; and [0166], lines 15-22), scan a root of each PCPI comprising the directory tree to generate an index

[catalog] of directories [directories], files [files], or qtrees associated with the directory tree [the analysis process proceeds iteratively through all elements of the file-system structure until all files and directories have been analyzed] (see [0166]) and organize the data identifiers into a structure that enables the backup data to be displayed [support browsing and querying abilities] (see [0164]; [0165]; and [0168]); and

a user interface [Backup Interface BUI 19] (see [0172]).

While Mani discloses the system providing support for browsing and querying abilities and a backup interface that may request restoration of a specific set of data (see [0165], lines 1-3 and [0172], lines 11-13), Mani fails to explicitly disclose the further limitation wherein the management application is configured to return a list of the selected directory, file, or qtree and one or more versions of the selected directory, file, or qtree. Dewey discloses a system for enabling access to prior file or folder versions of an identified filer or folder for the purpose of restore (see column 2, lines 10-27), including the further limitation of a user interface [shell UI 202] to select a directory, file, or qtree to view, wherein the management application is configured to return a list of the selected directory, file [file], or qtree [folder] and one or more versions of the selected directory, file [file], or qtree [folder] [the user has simply clicked on a filename in the shell UI, requested the file versioning operation, and has automatically and transparently received a list of timestamp-delineated, temporal shadow volumes for that file] (column 8, line 60 – column 9, line 2; column 11, line 59 – column12, line 2; and column 12, lines 26-44).

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the concept of displaying a list of the versions of a selected directory, file or qtree as disclosed by Dewey with the user interface of Mani. One would have been motivated to do so in order to increase the efficiency and speed of access to a particular directory, file or qtree version by not requiring a user to navigate the various volumes and subtrees to find captured versions of a file (Dewey: see column 1, lines 48-53 and column 8, line 65 – column 9, line 2; Mani: see [0057]).

Referring to claim 2, the combination of Mani and Dewy (hereafter Mani/Dewey) discloses the system as set forth in claim 1 further comprising a database [database of catalogs] that stores the data identifiers [attributes pertaining to the snapshot] and rules for handling the data identifiers [specific analysis process; derived file-system structure is stored] for retrieval by the user interface and the management application (Mani: see [0138] and [0166], lines 7-22).

Referring to claim 6, Mani/Dewey discloses the system as set forth in claim 1 wherein the user interface comprises a screen [BUI] that enables a user to set a desired lag time [time interval] after which failure to complete a scheduled backup operation causes an event to occur [status] (Mani: see [0172], lines 6-8 and [0201]).

Referring to claim 15, Mani/Dewey discloses the system as set forth in claim 14 wherein the user interface includes a command for destroying a qtree [a qtree interpreted as being analogous to a folder/sub-directory within a file system; derived file system structure is stored; relationships are preserved] relationship between the source data and a selected volume of the backup data in the destination system [deleting from

the shadow volume] (Mani: see [0026]; [0144]; [0166]; Dewey: see column 7, lines 27-38; column 12, lines 26-44; and column 13, lines 4-9).

Referring to claim 16, Mani/Dewey discloses the system as set forth in claim 15 wherein the management application is configured to delete a respective qtree associated with the qtree relationship on the destination system in response to activation of the command for destroying [deleting from the shadow volume] (Mani: see [0026]; [0144]; [0166]; Dewey: see column 7, lines 27-38; column 12, lines 26-44; and column 13, lines 4-9).

Referring to claim 17, Mani/Dewey discloses the system as set forth in claim 1 further comprising, in the user interface, a screen that enables selected data of the source data to be listed as entries and to be transmitted as the backup data to the destination storage system at a time separate from a scheduled backup time [first initiation] (Mani: see [0172]).

Referring to claim 18, Mani discloses a method [Fast Backup Storage and Recovery of Data] (see [0058]) for indexing and manipulating backup data stored on a destination storage system from source data stored on a source storage system comprising:

communicating, by a management client [backup appliance 17] (see [0169]), with the destination storage system [repository 15] and accessing data identifiers [attributes pertaining the snapshot] related to the backup data organized in a tree structure [file system structure] and representing a plurality of persistent consistency point images

(PCPIs) of the data [snapshot], each with associated information related to creation time [time of snapshot] (see [0026]; [0138]; and [0166], lines 15-22);

scanning the plurality of PCPIs to generate an index [catalogs] of directories [directories], files [files], or qtrees associated with the directory tree [the analysis process proceeds iteratively through all elements of the file-system structure until all files and directories have been analyzed] created at different points in time [consecutive snapshots] (see [0137], lines 1-3 and [0166]);

organizing the data identifiers into a structure that enables the backup data to be displayed [support browsing and querying abilities] (see [0164]; [0165]; and [0168]); and

selecting on a user interface [Backup Interface BUI 19] (see [0172]).

While Mani discloses the system providing support for browsing and querying abilities and a backup interface that may request restoration of a specific set of data (see [0165], lines 1-3 and [0172], lines 11-13), Mani fails to explicitly disclose the further limitations of the structure enabling the data to be displayed according to the directory, file, or the qtree and wherein the management application is configured to return a list of the selected directory, file, or qtree and one or more versions of the selected directory, file, or qtree. Dewey discloses a system for enabling access to prior file or folder versions of an identified filer or folder for the purpose of restore (see column 2, lines 10-27), including the further limitations of the structure enabling the data to be displayed according to the directory, file, or the qtree (see column 9, line 39 – column 10, line 4) and a user interface [shell UI 202] to select a directory, file, or qtree to view, wherein the management client is configured to return a list of the selected directory, file [file], or

qtree [folder] and one or more versions of the selected directory, file [file], or qtree [folder] [the user has simply clicked on a filename in the shell UI, requested the file versioning operation, and has automatically and transparently received a list of timestamp-delineated, temporal shadow volumes for that file] (column 8, line 60 – column 9, line 2; column 11, line 59 – column12, line 2; and column 12, lines 26-44).

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the concept of displaying a list of the versions of a selected directory, file or qtree as disclosed by Dewey with the user interface of Mani. One would have been motivated to do so in order to increase the efficiency and speed of access to a particular directory, file or qtree version by not requiring a user to navigate the various volumes and subtrees to find captured versions of a file (Dewey: see column 1, lines 48-53 and column 8, line 65 – column 9, line 2; Mani: see [0057]).

Referring to claim 19, Mani/Dewey discloses the method as set forth in claim 18 further comprising storing, in a database [database of catalogs], data identifiers [attributes pertaining to the snapshot] and rules for handling the data identifiers [specific analysis process; derived file-system structure is stored] for retrieval by the user interface and the management application (Mani: see [0138] and [0166], lines 7-22).

Referring to claim 31, Mani/Dewey discloses the method as set forth in claim 18 wherein each qtree includes qtree relationships with respect to other qtrees within the source storage system [a qtree interpreted as being analogous to a folder/sub-directory within a file system; derived file system structure is stored; relationships are preserved]

(Mani: see [0026]; [0144]; [0166]; Dewey: see column 7, lines 27-38 and column 12, lines 26-44).

Referring to claim 32, Mani/Dewey discloses the method as set forth in claim 18 further comprising providing, in the user interface, a command for destroying a qtree [a qtree interpreted as being analogous to a folder/sub-directory within a file system; derived file system structure is stored; relationships are preserved] relationship between the source data and a selected volume of the backup data in the destination storage system [deleting from the shadow volume] (Mani: see [0026]; [0144]; [0166]; Dewey: see column 7, lines 27-38; column 12, lines 26-44; and column 13, lines 4-9).

Referring to claim 33, Mani/Dewey discloses the method as set forth in claim 32 further comprising, in response to activation of the command for destroying the qtree relationship, deleting a respective qtree associated with the qtree relationship on the destination storage system [deleting from the shadow volume] (Mani: see [0026]; [0144]; [0166]; Dewey: see column 7, lines 27-38; column 12, lines 26-44; and column 13, lines 4-9).

Referring to claim 34, Mani/Dewey discloses the method as set forth in claim 18 further comprising providing, in the user interface, a screen that enables selected data of the source data to be listed as entries and to be transmitted as the backup data to the destination storage system at a time separate from a scheduled backup time [first initiation] (Mani: see [0172]).

Referring to claim 35, Mani discloses a method [Fast Backup Storage and Recovery of Data] (see [0058]) for managing backup of data, comprising:

scanning a plurality of persistent consistency point images (PCPIs) stored on a destination storage system [repository 15] (see [0137], lines 1-3 and [0166]); and

generating an index [catalogs] in response to scanning the plurality of PCPIs, [the analysis process proceeds iteratively through all elements of the file-system structure until all files and directories have been analyzed] wherein each has one or more versions created at different points in time [consecutive snapshots] (see [0137], lines 1-3 and [0166]).

While Mani discloses the system providing a Backup Interface and support for browsing and querying abilities and a backup interface that may request restoration of a specific set of data (see [0165], lines 1-3 and [0172]), Mani fails to explicitly disclose the further limitations of selecting a particular qtree to view and displaying each version of the particular qtree created at the different points in time. Dewey discloses a system for enabling access to prior file or folder versions of an identified filer or folder for the purpose of restore (see column 2, lines 10-27), including the further limitations of selecting a particular qtree [folder] to view and displaying each version of the particular qtree [folder] created at different points in time [the user has simply clicked on a filename in the shell UI, requested the file versioning operation, and has automatically and transparently received a list of timestamp-delineated, temporal shadow volumes for that file] (column 8, line 60 – column 9, line 2; column 9, line 39 – column 10, line 4; column 11, line 59 – column12, line 2; and column 12, lines 26-44).

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the concept of displaying a list of the versions of a selected directory,

file or qtree as disclosed by Dewey with the user interface of Mani. One would have been motivated to do so in order to increase the efficiency and speed of access to a particular directory, file or qtree version by not requiring a user to navigate the various volumes and subtrees to find captured versions of a file (Dewey: see column 1, lines 48-53 and column 8, line 65 – column 9, line 2; Mani: see [0057]).

Referring to claim 38, Mani/Dewey discloses the method as set forth in claim 35 further comprising activating user interface buttons associated with entries of the displayed qtree [folder/sub-directory] (Dewey: see column 12, lines 4-45 and column 7, lines 39-53).

Referring to claim 49, Mani discloses a method [Fast Backup Storage and Recovery of Data] (see [0058]) comprising:

transferring a plurality of persistent consistency point images (PCPIs) [snapshots] from a plurality of source servers to at least on destination storage system [repository 15] (see [0026]; [0138]; and [0166], lines 15-22); and

scanning the plurality of PCPIs to create an index [catalogs] of data structures [directories and files], files [files], or qtrees associated with the directory tree [the analysis process proceeds iteratively through all elements of the file-system structure until all files and directories have been analyzed] created at different points in time [consecutive snapshots] (see [0137], lines 1-3 and [0166]).

While Mani discloses the system providing a Backup Interface and support for browsing and querying abilities and a backup interface that may request restoration of a specific set of data (see [0165], lines 1-3 and [0172]), Mani fails to explicitly disclose the

further limitations of selecting a particular data structure to view; returning all qtree versions created at the different points in time for the particular data structure. Dewey discloses a system for enabling access to prior file or folder versions of an identified filer or folder for the purpose of restore (see column 2, lines 10-27), including the further limitations of selecting a particular data structure [folder] to view and returning all qtree [folder] versions created at the different points in time for the particular data structure [folder] [the user has simply clicked on a filename in the shell UI, requested the file versioning operation, and has automatically and transparently received a list of timestamp-delineated, temporal shadow volumes for that file] (column 8, line 60 – column 9, line 2; column 9, line 39 – column 10, line 4; column 11, line 59 – column12, line 2; and column 12, lines 26-44); and selecting a particular qtree [folder] from all the returned qtree versions created at different points in time to restore [the user can select a version for restoration] (see column 12, lines 4-6).

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the concept of displaying a list of the versions of a selected directory, file or qtree as disclosed by Dewey with the user interface of Mani. One would have been motivated to do so in order to increase the efficiency and speed of access to a particular directory, file or qtree version by not requiring a user to navigate the various volumes and subtrees to find captured versions of a file (Dewey: see column 1, lines 48-53 and column 8, line 65 – column 9, line 2; Mani: see [0057]).

Referring to claim 50, Mani discloses a system [Fast Backup Storage and Recovery of Data system] (see [0058]) comprising:

at least one source server [servers 3] configured to [storage mode] transfer a plurality of persistent consistency point images (PCPIs) [source data is backed up] to at least one destination storage system [repository 15] (see [0135], lines 1-5; [0174], lines 3-6 and Figs 3-4);

a management application [backup appliance 17] executed by a processor (see [0169]) configured to scan the plurality of PCPIs comprising the directory tree to generate an index [catalog] of directories [directories], files [files], or qtrees associated with the directory tree [the analysis process proceeds iteratively through all elements of the file-system structure until all files and directories have been analyzed] (see [0166]) and (c) organizes the data identifiers into a structure that enables the backup data to be displayed [support browsing and querying abilities] (see [0164]; [0165]; and [0168]); and

a user interface [Backup Interface BUI 19] (see [0172]).

While Mani discloses the system providing a Backup Interface and support for browsing and querying abilities and a backup interface that may request restoration of a specific set of data (see [0165], lines 1-3 and [0172]), Mani fails to explicitly disclose the further limitations of the management application further configured to select a particular data structure to view and further configured to return all qtree versions created at the different points in time for the particular data structure; and a user interface configured to display all the returned qtree versions created at different points in time, and further configured to allow a user to select a particular qtree from all the returned qtree versions to restore. Dewey discloses a system for enabling access to prior file or folder versions of an identified filer or folder for the purpose of restore (see column 2, lines 10-27),

including the further limitations of the management application further configured to select a particular data structure [folder] to view and further configured to return all qtree [folder] versions created at the different points in time for the particular data structure [folder] [the user has simply clicked on a filename in the shell UI, requested the file versioning operation, and has automatically and transparently received a list of timestamp-delineated, temporal shadow volumes for that file] (column 8, line 60 – column 9, line 2; column 9, line 39 – column 10, line 4; column 11, line 59 – column12, line 2; and column 12, lines 26-44); and a user interface configured to display all the returned qtree versions created at different points in time, and further configured to allow a user to select a particular qtree [folder] from all the returned qtree versions to restore [the user can select a version for restoration] (see column 11, line 59 – column 12, line 6).

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the concept of displaying a list of the versions of a selected directory, file or qtree as disclosed by Dewey with the user interface of Mani. One would have been motivated to do so in order to increase the efficiency and speed of access to a particular directory, file or qtree version by not requiring a user to navigate the various volumes and subtrees to find captured versions of a file (Dewey: see column 1, lines 48-53 and column 8, line 65 – column 9, line 2; Mani: see [0057]).

11. Claims 3-5, 20-23, 37 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over US PGPub 2005/0216788 to Mani-Meitav et al in view of US

Patent No 7,529,778 to Dewey et al as applied respectively to claims 2, 19, 35 and 39 above, and further in view of US Patent No 6,434,681 to Armangau (hereafter Armangau).

Referring to claim 3, Mani/Dewey discloses communication with the destination storage system, however, Mani/Dewey fails to explicitly disclose the further limitation of a network data management protocol extension. Armangau discloses indexing snapshots (see abstract), including the further limitation of in the destination storage system, a network data management protocol (NDMP) extension communicating with a storage operating system of the destination storage system [secondary data storage subsystem 43] and providing NDMP based communication between the management application [backup software] and the storage operating system (see column 9, line 46 – column 10, line 21 and column 17, lines 40-52) since NDMP is a standard which facilitates the partitioning of the backup problem between backup software vendors, server vendors, and network-attached storage vendors in such a way as to minimize the amount of host software for backup.

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the NDMP extension disclosed by Armangau to provide the communication disclosed by Mani/Dewey. One would have been motivated to do so since NDMP is a standard, which facilitates the partitioning of the backup problem between backup software vendors, server vendors, and network-attached storage vendors in such a way as to minimize the amount of host software for backup (Armangau: see column 1, lines 48-62).

Referring to claim 4, the combination of Mani/Dewey and Armangau (hereafter Mani/Dewey/Armangau) discloses the system as set forth in claim 3 further comprising a job framework [the BUI contains this functionality] that organizes a plurality of backup operations and restore operations by the management application and that communicates with the user interface so as to enable a user to access information with respect to status [completion status] of the backup operations and restore operations organized by the job framework (Mani: see [0085] and [0201], lines 18-22).

Referring to claim 5, Mani/Dewey/Armangau discloses the system as set forth in claim 4 further comprising a scheduler [scheduler 21] that interfaces with the source storage system and that performs the backup operations, transmitting the backup data from the source system to the destination storage system at a predetermined time interval [run at predetermined instants in time] (Mani: see [0181]; [0187]; and Fig 5).

Referring to claim 20, Mani/Dewey discloses communication with the destination storage system, however, Mani/Dewey fails to explicitly disclose the further limitation of a network data management protocol extension. Armangau discloses indexing snapshots (see abstract), including the further limitation of in the destination storage system, a network data management protocol (NDMP) extension communicating with a storage operating system of the destination storage system [secondary data storage subsystem 43] and providing NDMP based communication between the management application [backup software] and the storage operating system (see column 9, line 46 – column 10, line 21 and column 17, lines 40-52) since NDMP is a standard which facilitates the partitioning of the backup problem between

backup software vendors, server vendors, and network-attached storage vendors in such a way as to minimize the amount of host software for backup.

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the NDMP extension disclosed by Armangau to provide the communication disclosed by Mani/Dewey. One would have been motivated to do so since NDMP is a standard, which facilitates the partitioning of the backup problem between backup software vendors, server vendors, and network-attached storage vendors in such a way as to minimize the amount of host software for backup (Armangau: see column 1, lines 48-62).

Referring to claim 21, Mani/Dewey/Armangau discloses the method as set forth in claim 20 further comprising organizing, in a job framework [the BUI contains this functionality] a plurality of backup operations and restore operations by the management application and that communicates with the user interface so as to enable a user to access information with respect to status [completion status] of the backup operations and restore operations organized by the job framework (Mani: see [0085] and [0201], lines 18-22).

Referring to claim 22, Mani/Dewey/Armangau discloses the method as set forth in claim 21 further comprising a scheduler [scheduler 21] that interfaces with the source storage system and that performs the backup operations, transmitting the backup data from a source storage system to the destination storage system at a predetermined time interval [run at predetermined instants in time] (Mani: see [0181]; [0187]; and Fig 5).

Referring to claim 23, Mani/Dewey/Armangau discloses the method as set forth in claim 22 further enabling [BUI] a user to set a desired lag time [time interval] after which failure to complete a scheduled backup operation causes an event to occur [status] (Mani: see [0172], lines 6-8 and [0201]).

Referring to claim 37, Mani/Dewey discloses communication with the destination storage system, however, Mani/Dewey fails to explicitly disclose the further limitation of a network data management protocol extension. Armangau discloses indexing snapshots (see abstract), including the further limitation wherein the steps of communicating and transmitting include formatting information into a network data management protocol (NDMP) (see column 9, line 46 – column 10, line 21 and column 17, lines 40-52) since NDMP is a standard which facilitates the partitioning of the backup problem between backup software vendors, server vendors, and network-attached storage vendors in such a way as to minimize the amount of host software for backup.

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the NDMP extension disclosed by Armangau to provide the communication disclosed by Mani/Dewey. One would have been motivated to do so since NDMP is a standard, which facilitates the partitioning of the backup problem between backup software vendors, server vendors, and network-attached storage vendors in such a way as to minimize the amount of host software for backup (Armangau: see column 1, lines 48-62).

Referring to claim 41, Mani/Dewey discloses communication with the destination storage system, however, Mani/Dewey fails to explicitly disclose the further limitation of a network data management protocol extension. Armangau discloses indexing snapshots (see abstract), including the further limitation wherein the steps of communicating and transmitting include formatting information into a network data management protocol (NDMP) (see column 9, line 46 – column 10, line 21 and column 17, lines 40-52) since NDMP is a standard which facilitates the partitioning of the backup problem between backup software vendors, server vendors, and network-attached storage vendors in such a way as to minimize the amount of host software for backup.

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the NDMP extension disclosed by Armangau to provide the communication disclosed by Mani/Dewey. One would have been motivated to do so since NDMP is a standard, which facilitates the partitioning of the backup problem between backup software vendors, server vendors, and network-attached storage vendors in such a way as to minimize the amount of host software for backup (Armangau: see column 1, lines 48-62).

12. **Claims 7, 8, 12, 14, 24, 25 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over US PGPub 2005/0216788 to Mani-Meitav et al in view of US Patent No 7,529,778 to Dewey et al as applied respectively to claims 1 and 18**

above, and further in view of US PGPub 2003/0131207 to Arakawa et al (hereafter Arakawa).

Referring to claim 7, while Mani/Dewey discloses a plurality of organizational formats, Mani/Dewey fails to explicitly disclose the further limitation wherein the user can select a listing of source data entries indexed by names of the source system and a listing of source data entries indexed by names of volumes of the destination system in which the backup data from the source data resides. Arakawa discloses storing snapshot management information (see abstract), including the further limitation of wherein the user can select a listing of source data entries indexed by names of the source system and a listing of source data entries indexed by names of volumes of the destination system in which the backup data from the source data resides (see Fig 11; and [0086]-[0088]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the information in the table of Arakawa with the information collected by Mani/Dewey when indexing the snapshots to display information about the snapshots to the user. One would have been motivated to do so in order to increase efficiency of selecting a snapshot by listing all relevant information.

Referring to claim 8, the combination of Mani/Dewey and Arakawa (hereafter Mani/Dewey/Arakawa) discloses the system as set forth in claim 7 wherein each of the entries of each listing comprises a browse backups button [opening and reading] that enables a user to view backup data stored on the destination system that is associated

respectively with each of the entries (Dewey: see column 12, lines 4-45 and column 7, lines 39-53).

Referring to claim 12, Mani/Dewey/Arakawa discloses the system as set forth in claim 8 wherein each of the entries of each listing includes a restore button [restore] that enables a user to view restorable backup data structures with respect to each of the entries and to restore the backup data structures to the source data (Dewey: see column 12, lines 4-45 and column 7, lines 39-53).

Referring to claim 14, Mani/Dewey/Arakawa discloses the system as set forth in claim 12 wherein each qtree includes qtree relationships with respect to other qtrees within the source storage system [a qtree interpreted as being analogous to a folder/sub-directory within a file system; derived file system structure is stored; relationships are preserved] (Mani: see [0026]; [0144]; [0166]; Dewey: see column 7, lines 27-38 and column 12, lines 26-44).

Referring to claim 24, while Mani/Dewey discloses a plurality of organizational formats, Mani/Dewey fails to explicitly disclose the further limitation of selecting (a) a listing of source data entries indexed by names of the source storage system and (b) a listing of source data entries indexed by names of volumes of the destination storage system in which the backup data from the source data resides. Arakawa discloses storing snapshot management information (see abstract), including the further limitation of selecting (a) a listing of source data entries indexed by names of the source storage system and (b) a listing of source data entries indexed by names of volumes of the

destination storage system in which the backup data from the source data resides (see Fig 11; and [0086]-[0088]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the information in the table of Arakawa with the information collected by Mani/Dewey when indexing the snapshots to display information about the snapshots to the user. One would have been motivated to do so in order to increase efficiency of selecting a snapshot by listing all relevant information.

Referring to claim 25, Mani/Dewey/Arakawa discloses the method as set forth in claim 24 wherein each of the entries of each listing includes a browse backups button [opening and reading] that enables a user to view backup data stored on the destination storage system that is associated respectively with each of the entries (Dewey: see column 12, lines 4-45 and column 7, lines 39-53).

Referring to claim 29, Mani/Dewey/Arakawa discloses the method as set forth in claim 24 wherein each of the entries of each listing includes a restore button [restore] that enables a user to view restorable backup data structures with respect to each of the entries and to restore the backup data structures to the source data (Dewey: see column 12, lines 4-45 and column 7, lines 39-53).

13. **Claims 42 and 46-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over US PGPub 2005/0216788 to Mani-Meitav et al in view of US Patent No 7,529,778 to Dewey et al in view of US PGPub 2003/0131207 to Arakawa et al.**

Referring to claim 42, Mani discloses a system [Fast Backup Storage and Recovery of Data system] (see [0058]) for indexing and manipulating backup data stored on a destination storage system comprising:

a source storage system [servers 3] configured to generate a plurality of persistent consistency point images (PCPIs) associated with a particular directory tree and further configured [storage mode] to transfer the plurality of PCPIs [source data is backed up] to the destination storage system [repository 15] (see [0135], lines 1-5; [0174], lines 3-6 and Figs 3-4);

the destination storage system configured to execute a management client [backup appliance 17] (see [0169]), wherein the management client is configured to organize the plurality of PCPIs into an index using a database [database of catalogs] to allow the plurality of PCPIs to be displayed organizes the data identifiers into a structure that enables the backup data to be displayed [support browsing and querying abilities] (see [0164]; [0165]; and [0168]); and

an interface [Backup Interface BUI 19] configured to select a data entry (see [0172]).

While Mani discloses the system providing support for browsing and querying abilities and a backup interface that may request restoration of a specific set of data (see [0165], lines 1-3 and [0172], lines 11-13), Mani fails to explicitly disclose the further limitations of PCPIs to be displayed in (a) a listing of source data entries indexed by the particular directory tree, wherein each PCPI of the particular directory tree is created at one or more different times and an interface configured to select a data entry for the

particular directory tree, and the management client further configured to return a list of the plurality of PCPIs associated with the particular directory tree. Dewey discloses a system for enabling access to prior file or folder versions of an identified filer or folder for the purpose of restore (see column 2, lines 10-27), including the further limitations of PCPIs to be displayed in (a) a listing of source data entries indexed by the particular directory tree, wherein each PCPI of the particular directory tree is created at one or more different times (column 8, line 60 – column 9, line 2; column 11, line 59 – column12, line 2; and column 12, lines 26-44); and an interface [shell UI 202] configured to select a data entry for the particular directory tree and the management application further configured to return a list of the plurality of PCPIs associated with the particular directory tree [the user has simply clicked on a filename in the shell UI, requested the file versioning operation, and has automatically and transparently received a list of timestamp-delineated, temporal shadow volumes for that file] (column 8, line 60 – column 9, line 2; column 11, line 59 – column12, line 2; and column 12, lines 26-44).

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the concept of displaying a list of the versions of a selected directory, file or qtree as disclosed by Dewey with the user interface of Mani. One would have been motivated to do so in order to increase the efficiency and speed of access to a particular directory, file or qtree version by not requiring a user to navigate the various volumes and subtrees to find captured versions of a file (Dewey: see column 1, lines 48-53 and column 8, line 65 – column 9, line 2; Mani: see [0057]).

While Mani/Dewey discloses a plurality of organizational formats, Mani/Dewey fails to explicitly disclose the further limitation wherein the desired organizational format includes (b) a listing of source data entries indexed by names of the source system and (c) a listing of source data entries indexed by names of volumes of the destination system in which the backup data from the source storage system resides. Arakawa discloses storing snapshot management information (see abstract), including the further limitations of (b) a listing of source data entries indexed by names of the source system and (c) a listing of source data entries indexed by names of volumes of the destination system in which the backup data from the source storage system resides (see Fig 11; and [0086]-[0088]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the information in the table of Arakawa with the information collected by Mani/Dewey when indexing the snapshots to display information about the snapshots to the user. On would have been motivated to do so in order to increase efficiency of selecting a snapshot by listing all relevant information.

Referring to claim 46, Mani/Dewey/Arakawa discloses the system of claim 42, wherein the database [database of catalogs] stores the plurality of PCPIs [snapshots] and rules for handling the PCPIs [specific analysis process; derived file-system structure is stored] for retrieval by the interface and the management client (Mani: see [0138] and [0166], lines 7-22).

Referring to claim 47, Mani/Dewey/Arakawa discloses the system of claim 42, wherein the source storage system, upon initialization [first initiation], sends a base

PCPI [base-line image] and select data to the destination storage system (Mani: see [0153] and [0172], lines 8-11).

Referring to claim 48, Mani/Dewey/Arakawa discloses the system of claim 42 further comprising a scheduler [scheduler 21] that interfaces with the source system and that performs backup operations of transmitting the backup data comprising one or more PCPIs [snapshots] and change data [incremental backup] from the source storage system to the destination storage system at a predetermined time interval [run at predetermined instants in time] (Mani: see [0151]; [0181]; [0187]; and Fig 5).

Response to Arguments

14. Applicant's arguments filed in regards to the prior art rejections have been fully considered but they are not persuasive.

Referring to Applicant's arguments on pages 12-16 of the Remarks, the Applicant argues that the prior art of record fails to teach "management application configured to scan a root of each PCPI comprising the directory tree to generate an index associated with the directory tree."

The examiner respectfully disagrees. Mani teaches scan a root of each PCPI comprising the directory tree to generate an index [catalog] of directories [directories], files [files], or qtrees associated with the directory tree [the analysis process proceeds iteratively through all elements of the file-system structure until all files and directories have been analyzed] (see [0166]). The file system structure is considered to be analogous to the claimed directory tree. Mani teaches that the analysis process

proceeds iteratively through all elements of the file-system structure. In order for the analysis process to proceed through all elements, it is inherent that it starts ant the root and iterates down through the elements. While a catalog represents a single snapshot, the database of catalogs represents an index of all of the catalogs associated with each of the snapshots.

Referring to Applicant's arguments on page 17 of the Remarks in regards to dependent claims 3-5, 7, 8, 12, 14, 20-25, 29, 37 and 41, the rejections of the dependent claims are maintained for the reasons stated above with regards to the independent claims.

Referring to Applicant's arguments on pages 17-19 of the Remarks, the Applicant argues that the prior art of record fails to teach "management client configured to return a list of the plurality of PCPIs associated with the particular directory tree."

The examiner respectfully disagrees. Dewey teaches an interface [shell UI 202] configured to select a data entry for the particular directory tree and the management application further configured to return a list of the plurality of PCPIs associated with the particular directory tree [the user has simply clicked on a filename in the shell UI, requested the file versioning operation, and has automatically and transparently received a list of timestamp-delineated, temporal shadow volumes for that file] (column 8, line 60 – column 9, line 2; column 11, line 59 – column12, line 2; and column 12, lines 26-44). The Applicant argues that Dewey teaches obtaining a list of all shadow volumes. In the cited sections of Dewey, Dewey teaches the concept of displaying a list

of temporal shadow volumes for the selected file. The file is construed by the examiner as the item that associates the list with the directory tree.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- US Patent No 7,383,463 to Hayden et al titled “Internet Protocol Based Disaster Recovery of a Server."

16. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KIMBERLY LOVEL whose telephone number is (571)272-2750. The examiner can normally be reached on 9:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Cottingham can be reached on (571) 272-7079. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Art Unit 2167

15 July 2010
/KL/